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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,301	02/18/2004	Marie-Claire Cyrille	HSJ920030232US1	4287
36023	7590	07/18/2006	EXAMINER CAO, ALLEN T	
HITACHI GLOBAL STORAGE TECHNOLOGIES, INC. 5600 COTTLE ROAD, NHGB/0142 IP DEPARTMENT SAN JOSE, CA 95193			ART UNIT 2627	PAPER NUMBER

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/782,301	Applicant(s) CYRILLE ET AL.	
	Examiner Allen T. Cao	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-14 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/18/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 8 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Carey et al (US. 6,266,218 B1).

Carey et al discloses a magnetoresistive sensor having a magnetoresistive free layer 32; a first ferromagnetic bias layer 14 and a second ferromagnetic bias layer 12; both bias layers providing a first and second to the free layer, respectively (column 6, lines 28-36); and a decoupling layer 16 disposed between the first and second bias layers to substantially eliminate exchange coupling between the first and second bias layers (inherently, see column 5, lines 23-54; column 6, lines 1-10, 28-36 and claim 1), all as set forth in claim 1.

Regarding claim 2, Carey et al inherently discloses that the first bias layer has coercivity H_{c1} smaller than the coercivity H_{c2} of the second bias layer (formula $M_1 t_1 - M_2 t_2$ equal low but non-zero and magnetic momentum (M) is proportional to coercivity).

Regarding claim 3, Carey et al inherently discloses that the first and second bias layers comprise first and second materials respectively, and wherein the first and second materials are different (see claims 12 and 13 show that one of the bias layer can be made a material (claim 12) different from the other bias layer (claim 13)).

Regarding claim 4, Carey et al discloses that the first and second bias layers are made same materials (column 5, lines 41-44).

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Regarding claim 5, Carey et al discloses that the first and second bias layers are independent adjustable by application of an external field (column 7, lines 29-32; column 7, line 65 to column 8, line 34).

Regarding claim 8, Carey et al discloses that the decoupling layer 16 is made of Rh (column 5, lines 23-33 and claim 9).

Regarding claim 14, Carey et al discloses that the sensor is a magnetic recording head.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al.

Regarding claims 9-11, Carey et al discloses that the decoupling layer is made of Cr or Rh; however, Carey et al does not clearly disclose that the decoupling layer can be made of either bcc metal (claim 9), fcc metal (claim 10), or CrX alloy (claim 11) as recited.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the decoupling layer of Carey et al with such material as set forth, supra instead of Cr or Rh through an obvious routine lab experimentation and optimization in order to improve the read characteristics of the head. Additionally, it has been held to be within the general skill of a worker in the art to

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select a known material having different chemical bonding structures on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416 (CCPA 1960).

5. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al.

Regarding claims 12 and 13, Carey et al discloses that the bias layer is made of Co or an alloy from CoPt; however, Carey et al does not clearly disclose that the bias layer can be made of either Co alloy as claimed in claim 12 or CoPt alloy as recited in claim 13.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the bias layer of Carey et al with such material as set forth, supra through an obvious routine lab experimentation and optimization in order to improve the read characteristics of the head. Additionally, it has been held to be within the general skill of a worker in the art to select a known material having different chemical bonding structures on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416 (CCPA 1960).

6. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen T. Cao whose telephone number is (571) 272-7569. The examiner can normally be reached on Mon - Thurs (7:30 - 6:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Allen Cao
Primary Examiner

Ac
July 10, 2006